Iowa EIP Planning and Implementation
Data Center Consolidation

Abstract

Methodology

Data Center Consolidation

Initiative

Map a timeline for taking advantage of a **Data Center Consolidation**— facilities, servers, midrange equipment, etc., consolidating all servers into a "virtual" server farm, reducing servers from the State's inventory and making corresponding reductions to agency and IT/ITE server administration labor. Consolidation allows higher levels of security and business continuity/disaster recovery. Lower labor costs in management of data centers and lower facility costs.

Team Mission Statement

The Data Center Consolidation Implementation and Migration team will develop a high-level work plan to provide a list of activities, considerations and timeline for implementation, taking into account the impact on service levels, business models and Return On Investment (ROI).

Data Center Model

The fast pace of business requires organizations, both public and private to embrace new ideas, initiatives and technologies to reduce costs and improve business processes. Among these are:

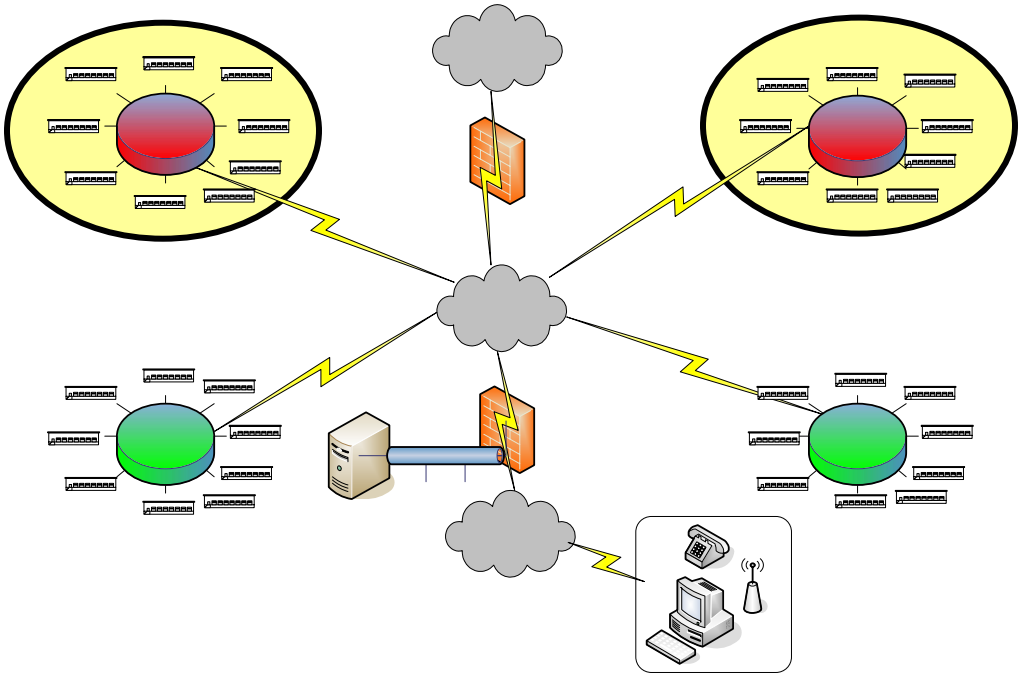
- On-demand and utility computing, where computing resources are provided and consumed like utility services on an as-needed basis. IT might provide computing services, or they might be purchased from a central utility.
- Autonomic computing, where IT resources are built to be self-managing and self-healing.
- Grid computing, where unused computing resources across an organization or among organizations are tapped to meet changing needs for processing power.
- Virtualization, where storage, computing power and network services are provided as pools of resources to be drawn upon as needed. With virtualization, a

collection of devices, say, storage systems, appears to be a single, easily accessible resource.

The choices created by so many new ideas can be daunting. Enabling a computing environment to transition to these and other new technologies is a never-ending process of change. Not only do traditional functions blur-- such as network infrastructure and Web infrastructure, but the strategies of key application developers begin to conflict with each other. Further many applications already well-entrenched in traditional data centers may compete with autonomic computing initiatives.

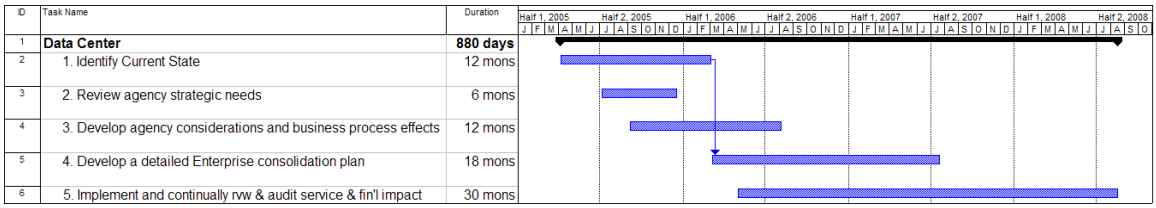
As in earlier major transitions in the IT industry, a quiet revolution generated by the marketplace will support a new data center and provide considerable leverage with potential application suppliers. As application suppliers are keenly aware, the new data center evolution will provide an opportunity to shift loyalty and change the State's spending patterns. Simply put, no vendor- no matter how entrenched- has a lock on State business.

The Data Center Consolidation initiative of interest in this report, and diagrammed below, calls for the conversion of the ITE and IWD Data Centers to File and Print facilities, and the build-out of the JFHQ facility as the State's primary state data center. The existing DOT data center will continue as DOT's primary data center and will serve as JFHQ's backup.



Activity Level Project Timeline

The timeline of proposed project activities shown below assumes a start date in the 2nd calendar quarter of 2005. The data center consolidation would be complete in mid-2008.



Detail of the project activities in each phase follows.

Description of Activities

1. Identify current state.

Description

Create a picture of the Enterprise's current mainframe, midrange and server computing environments, taking into account hardware and software assets, operational and management processes and inter- and intra-agency relationships. Specifically:

- Compile an inventory of business applications (business requirements & capacity planning).
- Compile an inventory of current projects (business and IT enhancements/upgrades).
- Develop an Asset Management Program.
- Document current agency performance requirements.
- Document current business to business processes.
- Document current performance measures, scorecards and results documents.
- Document current privacy/security requirements.
- Document portfolio of Service Level Agreements.
- Gather current User information.
- Identify and document current operational procedures.
- Document the current Spend by funding source.
- Document the current interagency reciprocal data sharing agreements.

Risk

1. Identification of all servers, applications and utilities
2. Identification of all documentation support transition and consolidation activities
3. Allocation of funding to accomplish consolidation

Considerations

•What (make, model, OS, processor, software, operating procedures, versioning, application tools) •Configurations and customizations •Leased/purchased •Business requirements for services and life cycle plans. •Funding sources for asset, usage restrictions •Contract/vendor information •Data storage needs •Asset Location (Staff and Hardware) •Facilities inventories Consider ownership and application restrictions on existing equipment and applications. Business requirements for services and life cycle plans. Create a set of common input documents and a change management process.	
Expected Outcome:	A point-in-time picture of the Enterprise's current mainframe, midrange and server computing environments.
Timeframe:	6 – 12 Months
Cost (000's):	Incremental cost: $500-750 Internal hours: 80,000 hours

2. Review agency strategic needs.

Description

Create a picture of the Enterprise's planned mainframe, midrange and server computing resources, technology, capacity and availability. Document, and define where needed, processes for the identification and development of these initiatives. Specifically:

- Compile a listing of upcoming projects (business and IT enhancements/upgrades).
- Define strategic business to business processes.
- Develop a process to identify the "new" core business / technology and how to source.
- Document planned agency performance requirements.
- Document planned privacy/security requirements and project future needs.
- Gather planned User information.

Risk

Improper execution resulting in misalignment of infrastructure with business needs.

Lack of full internal business partner participation resulting in significant cost for the enterprise.

Considerations

The identification of agency strategic business directions and goals are critical in driving Enterprise IT service needs. Enterprise business leadership and participation are therefore required to inform IT plans.

Expected Outcome:	A picture of the Enterprise's planned mainframe, midrange and server computing resources, technology, capacity and availability.
Timeframe:	3 – 6 Months
Cost (000's):	Incremental cost: $200-400 Internal hours: 40,000 hours

3. Develop agency considerations and business process effects.

Description

Develop plans for managing the impact of the data center consolidation on the entire computing environment. All Plans should include: current, strategic, transitional, business impacts, financial and fund source requirements.

- Hardware Plan
- Software Plan
- Business Applications Plan
- Statewide Facilities Plan
- Connectivity and Traffic Plan
- Human Resource Plan
- Communications Plan
- Security Plan
- Business Requirements/Impact Plan
- Agency Transition/Migration Plan
- Financial/ROI/Spend Plan
- Performance Management and Auditing Plan
- Disaster Recovery/Business Continuity Plan
- Data Management Plan

Risk

Enterprise business leadership and IT participation are required for informed IT planning.

Interruption of services during this planning phase.

Impact on current and new initiatives.

Non-participation from AFSCME.

Considerations

Federal Requirements, (program, funding, usage, ownership)

Funding sources

Iowa Code citations – someone will need to assess and provide recommendations/options

Administrative rules

Voluntary or mandatory or partnership participation

Business relationships

User service levels

Union participation/ collective bargaining

Business partner contractual requirements

Hardware and Software replacement cycle, including funding

Transition/migration costs

Cost affordable service offerings/packages and rates

Detailed cost analysis of equipment and facilities:

- •Fully build out facility options, to include accessibility and feasibility
- •Leases/buyouts
- •Relocation (staff, equipment, connectivity, traffic application performance)
- •Vacate current locations
- •Reuse of equipment
- •Business service impact
- •Develop service offerings/packages and rates

Expected Outcome:	Blueprints and roadmaps for managing the impact of the data center consolidation on the Enterprise computing environment..
Timeframe:	12 Months
Cost (000's):	Incremental cost: $750-$1,000
	Internal hours: 80,000 to 120,000 hours

4. Develop a detailed Enterprise consolidation plan.

Description

Taking into account the output from activities 1, 2 and 3, develop a detailed task-specific Enterprise implementation plan for the data center consolidation.

- Acquire "Business Relationship Managers" to develop program policy, strategic and tactical plans.
- Acquire vendor relationship managers to define performance expectations and development performance measures; manage vendor contractors.
- Appoint project managers for the transition.
- Develop a Business Partners Communications Plan.
- Conduct a detailed cost analysis to:
    - Develop a prioritization methodology and implementation plan.
    - Develop performance measures, scorecards and results documents.
    - Develop portfolio of Service Level Agreements.
- Establish a problem reporting process and trouble ticket system.
- Establish PMO for the transition.
- Identify and document planned operational procedures.
- Develop a Constituencies Communications Plan.
- Establish and implement performance monitoring tools, document results and link to applicable Service Level Agreements.
- Establish an enterprise sourcing program.
- Develop new network standards and topology, including data center connectivity, NOC administration and remote management.
- Develop transition plan for providing interim services.
- Develop equipment redirection and retirement plans.
- Develop a detailed move plan.
- Develop a service continuity and contingency plan.

Risk

Dependency on Activity 1, 2 and 3 completion.

Full and adequate understanding of the complexities and interdependencies of consolidating equipment from 100+ data center/server locations (it is not <u>just</u> moving equipment).

Impact on remote office service levels for state employees and constituents.

Considerations

Appropriate consideration for connectivity requirements. Ensure that decision-makers are well-informed on agency impacts and service delivery. Activity 4 may begin upon agency completion of Activities 1, 2 and 3. Assumes that the State CIO, Governance Board, Architecture Review Board are in place and that key decisions have been made with regard to infrastructure, architecture, networking, strategic goals for implementation, culture and funding. **[may need to be moved to Risks]**	
Expected Outcome:	A task-specific implementation plan for the data center consolidation.
Timeframe:	12 – 18 Months
Cost (000's):	Incremental cost: $1,800 to $2,500 Internal hours: 240,000 hours

5. Implement and continually review and audit service and financial impact.

Description

Implement the Data Center Consolidation and ensure continuity of service to internal customers and the Enterprise's constituents before, during and after the consolidation.

- Implement the consolidation.
- Monitor and revise plan as necessary.
- Review and revise Constituencies Communications Plan as necessary.
- Review performance measures, scorecards and results documents.
- Review portfolio of Service Level Agreements.
- Ensure that Disaster Recovery and Business Continuity processes and procedures are in place and effective:
    - Establish and implement performance monitoring tools, document results and link to applicable Service Level Agreements.

Risk

<enter risk and mitigation here

Considerations

<enter considerations here>

Expected Outcome:	Consolidation of data centers.
Timeframe:	24 – 36 months
Cost (000's):	Incremental cost: $X,000
	Internal hours: X,000 hours

Cultural Considerations

- Business unit resistance